35 Minutes October 8, 2009

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION

JR/INTER SCHOOL DIVISION

CONTEST #1

NAME _____ SCHOOL _____

QUESTIONS	ANSWERS
1. The letters in this expression represent the same numbers they represent on a telephone dial. Find the numerical answer. $\frac{T - R + Y}{M + A + T \div H} = ?$	1.
2. Point C is the midpoint of $\overline{AB}$, point D is the midpoint of $\overline{AC}$, point E is the midpoint of $\overline{AD}$ and point F is the midpoint of $\overline{AE}$. If AF = 3, what is the number of units in the length of $\overline{AB}$?	2.
3. A man bought some plates: $\frac{2}{3}$ of them were cracked; $\frac{1}{2}$ of them were chipped; and $\frac{1}{4}$ were both cracked and chipped. All but two of the plates were either chipped or cracked or both. How many plates did he buy?	3.
4. You just started your drive to Lake Ponderosa, a distance of 300 miles. You must check into the campground in $6\frac{1}{2}$ hours. If you average 44 miles per hour for the first 198 miles, what should be your average speed for the rest of the journey?	4.
5. In how many different ways can a panel of four on-off switches be set if no two adjacent switches may be off?	5.
6. The product of two consecutive odd positive integers added to their sum is 119. What are these two integers?	6.
7. A game cartridge was on sale last week at 15% off the regular price. Then an additional 10% of the sale price was deducted to give a super sale price of $25.09. What was the regular price of the cartridge?	7.

ADVISER: Transfer a "1" for each correct answer and a "0" for each incorrect answer to the return scorecard. Mail results within 5 days of the contest date. Please make up any missed contests and mail the results.

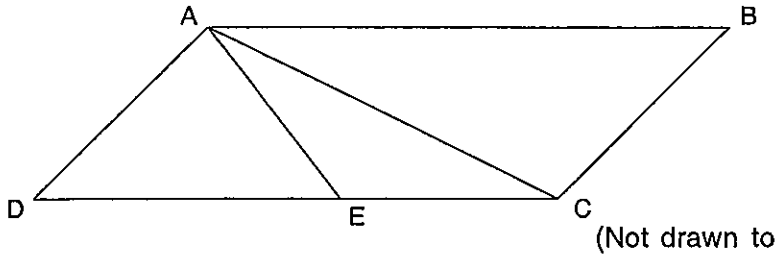
35 Minutes November 12, 2009

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION

JR/INTER SCHOOL DIVISION

CONTEST #2

NAME _____ SCHOOL _____

QUESTIONS	ANSWERS
1. The digit 3 is written at the right of a certain two-digit number, thus forming a three-digit number. The new number is 372 more than the original two-digit number. What was the original two-digit number?	1.
2. Misters Blue, Gray and White have shirts and ties that are blue, gray and white. No man's clothing is the same color as his name. No man wears the same colored tie or shirt as any other man. If Mr. Blue's tie is the same color as Mr. Gray's shirt, what is the color of Mr. White's shirt?	2.
3. Fifty percent more than what number is 25 percent less than 60 percent more than 10?	3.
4. Alpha, Beta and Cookie are horses of equal ability with each as likely to win as another. When the three horses race, what is the probability that they will finish in alphabetical order? (Assume no ties are allowed.)	4.
5. A certain number has exactly eight factors, of which 35 and 77 are two. Find the value of the number.	5.
6. What is a particular number if $\frac{1}{2}$ of it plus $\frac{2}{3}$ of it is 42?	6.
7. In the parallelogram ABCD, $\overline{DE} = \overline{EC}$, $\overline{AC}$ is a diagonal and a line segment ($\overline{AE}$) connects points A and E. What is the ratio of the area of Δ ADE to the area of the parallelogram?  (Not drawn to scale)	7.

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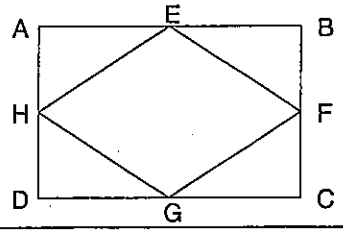
35 Minutes December 10, 2009

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION
JR/INTER SCHOOL DIVISION
CONTEST #3

NAME _____ SCHOOL _____

QUESTION	ANSWER
1. If the digits used in writing the numerals 1, 2, 3, . . ., 100 are listed, what are their mean, median, and mode? (All three answers are required)	1.
2. Three tired and hungry men had a bag of apples. When they were asleep, one of them awoke, ate $\frac{1}{3}$ of the apples, and went back to sleep. Later, a second man awoke, ate $\frac{1}{3}$ of the remaining apples, and went back to sleep. Finally, the third man awoke and ate $\frac{1}{3}$ of the remaining apples, leaving 8 apples in the bag. How many apples were in the bag originally?	2.
3. Given rectangle ABCD with length twice the width; midpoints E, F, G, H; perimeter of ABCD is 48 units. Find the area of EFGH.  (Not drawn to scale.)	3.
4. Subject Survey - Home Room 114: 18 like Math, 32 like English, 25 like Language. 8 like Math and English, 16 like English and Language, 7 like Math and Language, 3 like all subjects. Everyone likes at least one of the three subjects. How many students are in H.R. 114?	4.
5. A grocer bought 12 dozen oranges at 24 cents a dozen. He found 18 bad oranges in the box and he sold the rest at the rate of 3 oranges for 8 cents. Find his percentage of gain or loss.	5.
6. Tom and his two brothers bought identical notebooks when school started in September, and each of them bought three. Tom, the eldest, paid for the entire purchase with a $10 bill. He received under half a dollar in change, all in nickels. There was no sales tax and the price cannot be fractional. What was the price of one notebook?	6.
7. Fred's Fast Food Menu reads: Fredburger, milk shake, order of fries . . . . . $3.72 The cost of 1 Fredburger = the cost of 1 milk shake and 2 orders of fries. The cost of 3 milk shakes = the cost of 1 Fredburger and 1 order of fries What is the cost of a Fredburger, a milkshake, and two orders of fries?	7.

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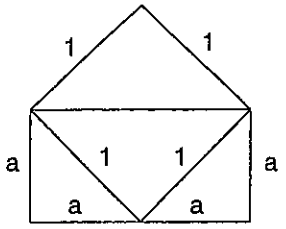
35 Minutes January 14, 2010

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION

JR/INTER SCHOOL DIVISION

CONTEST #4

NAME _____ SCHOOL _____

QUESTION	ANSWER
1. A wagon train had ninety-six wagons, each carrying the same number of people. When twelve wagons broke down, each of the other wagons had to carry one more person. How many people were in each wagon originally?	1.
2. If $A * B = AB + 1$ and $A \# B = \frac{(A + B)}{2}$, then find $3 * [(7 \# 3) \# (3 * 4)]$	2.
3. A farm stand sells cider from two barrels. The smaller barrel holds 336 L, but it is now only $\frac{5}{6}$ full. The farmer empties this cider into the other barrel and finds that the cider fills only $\frac{4}{9}$ of it. How much cider would the larger barrel hold when full?	3.
4. The home plate used in baseball can be produced by filling in two corners of a 1-by-1 square as shown. What is the area of home plate?  (Not drawn to scale.)	4.
5. Sarah is paid a graduated commission. She receives 5% of the first $1,500 in sales, 7% of the next $1,500 in sales and 10% of all sales over $3,000. Find her commission if her sales totaled $15,800.	5.
6. Two balls of solid color and one striped ball are on the pool table, as well as the cue ball (white) and the eight ball (black). Your little sister races in and takes a ball from the table and leaves with it. Your little brother also takes a ball. What is the probability that the ball your brother took is striped?	6.
7. Larry has been saving his money to buy new hubcaps for his car. He counted his money and found that he had more than enough money to make his purchases. He had several nickels (five-cent coin), 89 dimes (ten-cent coin), 112 quarters (twenty-five-cent coin), 7 half-dollars (fifty-cent coin), 67 one-dollar bills, and 7 five-dollar bills. If the hubcaps cost $144, what is the least number of nickels he can have?	7.

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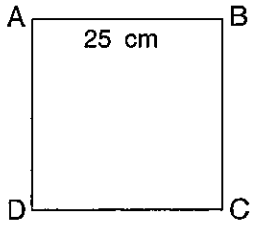
35 Minutes February 11, 2010

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION

JR/INTER SCHOOL DIVISION

CONTEST #5

NAME _____ SCHOOL _____

QUESTION	ANSWER
1. A grandfather clock chimes 4 times fifteen minutes after the hour; 8 times on the half-hour, 12 times forty-five minutes after the hour; and on the hour it strikes 16 times plus one strike for each hour. In one week, how many chimes are struck by that clock?	1.
2. What are the dimensions of square EFGH you must cut from square ABCD, whose side is 25 cm, so that the remaining area is reduced by 25 percent?  (Not drawn to scale.)	2.
3. A particular bike wheel makes 1056 revolutions in one mile. What is the approximate radius of the wheel in feet?	3.
4. Express as a common fraction: $\left[\left(\frac{1}{2}\right)^{-1} + \left(\frac{1}{3}\right)^{-1} + \left(\frac{1}{5}\right)^{-1} + \left(\frac{1}{7}\right)^{-1} \right]^{-1}$	4.
5. What is the difference between the two largest prime factors of 14190?	5.
6. The ratio of females to males in a school band is 7 to 4. If three females and twelve males are absent from practice, the ratio of females to males is 5 to 2. How many members of the band attend practice?	6.
7. Ed, Dana and Monica own the Main Street Delicatessen. Ed put up $18,750; Dana put up $15,000; and Monica put up $12,500. Each person receives a share of the profit according to the amount invested. Last year, the Deli made a profit of $18,500. What was Monica's share of the profit in dollars?	7.

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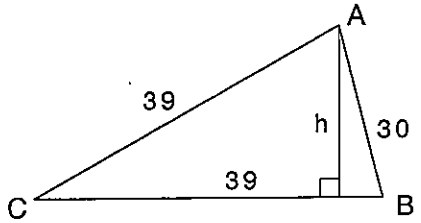
35 Minutes March 11, 2010

AMERICAN SCHOLASTIC MATHEMATICS ASSOCIATION

JR/INTER SCHOOL DIVISION

CONTEST #6

NAME _____ SCHOOL _____

QUESTION	ANSWER
1. Calculate the altitude "h" of the isosceles triangle shown.  (Not drawn to scale.)	1.
2. On Monday, a store put out 10 watermelons to be sold and some were sold. On Tuesday, the number left over was doubled, and again the same number was sold as on Monday. On Wednesday, the number left over was tripled, and the same number sold as on Monday, leaving none left over. How many were sold each day?	2.
3. The price of a particular dress is such that the profit is 20 percent of the price. Increasing the price by $20 results in a profit of one-third of the price. What was the original price of the dress?	3.
4. Dr. Thomas McKay lived $\frac{3}{13}$ of his life as a child. He spent $\frac{4}{39}$ of his life preparing for his outstanding career in medicine. For $\frac{1}{2}$ of his life, he was a very successful surgeon in a famous children's hospital. Since his retirement, he has lived 13 years on a comfortable pension. How old is he now?	4.
5. The face of a 12-hour digital clock can be considered to be constructed of twenty-three different lights and a colon. What time is it when the fewest number of lights are lit? What time is it when the largest number of lights are lit? (Both answers required.)	5.
6. Karen, Beth and Jarrett each tried to guess the weight of a giant pizza. Karen's guess: 59 pounds Beth's guess: 94 pounds Jarrett's guess: 121 pounds One guess was off by 16, one guess was off by 19, and one guess was off by 43. How many pounds did the pizza weigh?	6.
7. Every graduating senior from Washington High School enters Augusta College, as do $\frac{1}{2}$ of those from Lincoln High School. At Augusta College, $\frac{1}{2}$ the freshmen are from Washington HS. Of 960 graduates from Lincoln HS and 640 graduates from Washington HS, how many of Augusta College's freshmen class are graduates from neither Washington nor Lincoln?	7.

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Note: Since this is the last contest of the year, the adviser must make sure the cumulative score for each student is indicated on the scorecard so that we can issue the award for your highest-scoring student.